SEQUENCE LISTING

<110> Korneluk, Robert G.
LaCasse, Eric
Baird, Stephen
Holcik, Martin
Young, Sean

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53-57, 59-62, 64,66
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<221> VARIANT
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            20   25   30
Xaa Asp Xaa Val Xaa Cys Phe Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Trp
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Cys Xaa Phe Val
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Phe Xaa Pro Cys Gly His Xaa Xaa Xaa

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Cys Xaa Xaa Cys Ala Xaa Xaa Xaa Xaa Xaa Cys Pro Xaa Cys
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35 40 45
Arg Ala Gly Phe Leu Tyr Thr Gly Glu Gly Asp Thr Val Arg Cys Phe
50 55 60
Ser Cys His Ala Ala Val Asp Arg Trp Gln Tyr Gly Asp Ser Ala Val
65 70 75 80
Gly Arg His Arg Lys Val Ser Pro Asn Cys Arg Phe Ile Asn Gly Phe
85 90 95
Tyr Leu Glu Asn Ser Ala Thr Gln Ser Thr Asn Ser Gly Ile Gln Asn
100 105 110
Gly Gln Tyr Lys Val Glu Asn Tyr Leu Gly Ser Arg Asp His Phe Ala
115 120 125
Leu Asp Arg Pro Ser Glu Thr His Ala Asp Tyr Leu Leu Arg Thr Gly
130 135 140
Gln Val Val Asp Ile Ser Asp Thr Ile Tyr Pro Arg Asn Pro Ala Met
145 150 155 160
Tyr Cys Glu Glu Ala Arg Leu Lys Ser Phe Gln Asn Trp Pro Asp Tyr
165 170 175
Ala His Leu Thr Pro Arg Glu Leu Ala Ser Ala Gly Leu Tyr Tyr Thr
180 185 190
Gly Ile Gly Asp Gln Val Gln Cys Phe Cys Cys Gly Gly Lys Leu Lys
195 200 205
Asn Trp Glu Pro Cys Asp Arg Ala Trp Ser Glu His Arg Arg His Phe
210 215 220
Pro Asn Cys Phe Phe Val Leu Gly Arg Asn Leu Asn Ile Arg Ser Glu
225 230 235 240
Ser Asp Ala Val Ser Ser Asp Arg Asn Phe Pro Asn Ser Thr Asn Leu
245 250 255
Pro Arg Asn Pro Ser Met Ala Asp Tyr Glu Ala Arg Ile Phe Thr Phe
260 265 270
Gly Thr Trp Ile Tyr Ser Val Asn Lys Glu Gln Leu Ala Arg Ala Gly
275 280 285
Phe Tyr Ala Leu Gly Glu Gly Asp Lys Val Lys Cys Phe His Cys Gly
290 295 300
Gly Gly Leu Thr Asp Trp Lys Pro Ser Glu Asp Pro Trp Glu Gln His
305 310 315 320
Ala Lys Trp Tyr Pro Gly Cys Lys Tyr Leu Leu Glu Gln Lys Gly Gln
325 330 335
Glu Tyr Ile Asn Asn Ile His Leu Thr His Ser Leu Glu Glu Cys Leu
340 345 350
Val Arg Thr Thr Glu Lys Thr Pro Ser Leu Thr Arg Arg Ile Asp Asp
355 360 365
Thr Ile Phe Gln Asn Pro Met Val Gln Glu Ala Ile Arg Met Gly Phe
370 375 380
Ser Phe Lys Asp Ile Lys Lys Ile Met Glu Glu Lys Ile Gln Ile Ser
385 390 395 400
Gly Ser Asn Tyr Lys Ser Leu Glu Val Leu Val Ala Asp Leu Val Asn
405 410 415
Ala Gln Lys Asp Ser Met Gln Asp Glu Ser Ser Gln Thr Ser Leu Gln

```
            420                 425                 430
Lys Glu Ile Ser Thr Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Lys
        435                 440                 445
Leu Cys Lys Ile Cys Met Asp Arg Asn Ile Ala Ile Val Phe Val Pro
    450                 455                 460
Cys Gly His Leu Val Thr Cys Lys Gln Cys Ala Glu Ala Val Asp Lys
465                 470                 475                 480
Cys Pro Met Cys Tyr Thr Val Ile Thr Phe Lys Gln Lys Ile Phe Met
                485                 490                 495
Ser
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<210> 220
<211> 2676
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(2676)
<223> n=a,t,c, or g

<400> 220
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gcaaagccat gcacaaaact acctccctag agaaaggcta gtccctttc ttccccattc 180
atttcattat gaacatagta gaaaacagca tattcttatc aaatttgatg aaaagcgcca 240
acacgtttga actgaaatac gacttgtcat gtgaactgta ccgaatgtct acgtattcca 300
cttttcctgc tggggttcct gtctcagaaa ggagtcttgc tcgtgctggt ttctattaca 360
ctggtgtgaa tgacaaggtc aaatgcttct gttgtggcct gatgctggat aactggaaaa 420
gaggagacag tcctactgaa aagcataaaa agttgtatcc tagctgcaga ttcgttcaga 480
gtctaaattc cgttaacaac ttggaagcta cctctcagcc tacttttcct tcttcagtaa 540
cacattccac acactcatta cttccgggta cagaaaacag tggatatttc cgtggctctt 600
attcaaactc tccatcaaat cctgtaaact ccagagcaaa tcaagaattt tctgccttga 660
tgagaagttc ctacccctgt ccaatgaata acgaaaatgc cagattactt acttttcaga 720
catggccatt gacttttctg tcgccaacag atctggcacg agcaggcttt tactacatag 780
gacctggaga cagagtggct tgctttgcct gtggtggaaa attgagcaat tgggaaccga 840
aggataatgc tatgtcagaa cacctgagac attttcccaa atgcccattt atagaaaatc 900
agcttcaaga cacttcaaga tacacagttt ctaatctgag catgcagaca catgcagccc 960
gctttaaaac attctttaac tggccctcta gtgttctagt taatcctgag cagcttgcaa 1020
gtgcgggttt ttattatgtg ggtaacagtg atgatgtcaa atgcttttgc tgtgatggtg 1080
gactcaggtg ttgggaatct ggagatgatc catgggttca acatgccaag tggtttccaa 1140
ggtgtgagta cttgataaga attaaaggac aggagttcat ccgtcaagtt caagccagtt 1200
accctcatct acttgaacag ctgctatcca catcagacag cccaggagat gaaaatgcag 1260
agtcatcaat tatccatttg gaacctggag aagaccattc agaagatgca atcatgatga 1320
atactcctgt gattaatgct gccgtggaaa tgggctttag tagaagcctg gtaaaacaga 1380
cagttcagag aaaaatccta gcaactggag agaattatag actagtcaat gatcttgtgt 1440
tagacttact caatgcagaa gatgaaataa gggaagagga gagagaaaga gcaactgagg 1500
aaaaagaatc aaatgattta ttattaatcc ggaagaatag aatggcactt tttcaacatt 1560
tgacttgtgt aattccaatc ctggatagtc tactaactgc cggaattatt aatgaacaag 1620
aacatgatgt tattaaacag aagacacaga cgtctttaca agcaagagaa ctgattgata 1680
cgattttagt aaaaggaaat attgcagcca ctgtattcag aaactctctg caagaagctg 1740
aagctgtgtt atatgagcat ttatttgtgc aacaggacat aaaatatatt cccacagaag 1800
atgtttcaga tctaccagtg gaagaacaat tgcggagact accagaagaa agaacatgta 1860
aagtgtgtat ggacaaagaa gtgtccatag tgtttattcc ttgtggtcat ctagtagtat 1920
gcaaagattg tgctccttct ttaagaaagt gtcctatttg taggagtaca atcaagggta 1980
cagttcgtac atttctttca tgaagaagaa ccaaaacatc gtctaaactt tagaattaat 2040
ttattaaatg tattataact ttaactttta tcctaatttg gtttccttaa aatttttatt 2100
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tatttacaac tcaaaaaaca ttgttttgtg taacatattt atatatgtat ctaaaccata 2160
tgaacatata ttttttagaa actaagagaa tgataggctt ttgttcttat gaacgaaaaa 2220
gaggtagcac tacaaacaca atattcaatc caaatttcag cattattgaa attgtaagtg 2280
aagtaaaact taagatattt gagttaacct ttaagaattt taaatatttt ggcattgtac 2340
taataccggg aacatgaagc caggtgtggt ggtatgtacc tgtagtccca ggctgaggca 2400
agagaattac ttgagcccag gagtttgaat ccatcctggg cagcatactg agaccctgcc 2460
tttaaaaacn aacagnacca aanccaaaca ccagggacac atttctctgt ctttttgat 2520
cagtgtccta tacatcgaag gtgtgcatat atgttgaatc acattttagg gacatggtgt 2580
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aaaaaaaaaa aaaaaactcg aggggcccgt accaat                          2676

<210> 221
<211> 604
<212> PRT
<213> Homo sapiens

<400> 221
Met Asn Ile Val Glu Asn Ser Ile Phe Leu Ser Asn Leu Met Lys Ser
 1               5                  10                  15
Ala Asn Thr Phe Glu Leu Lys Tyr Asp Leu Ser Cys Glu Leu Tyr Arg
            20                  25                  30
Met Ser Thr Tyr Ser Thr Phe Pro Ala Gly Val Pro Val Ser Glu Arg
        35                  40                  45
Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys Val
    50                  55                  60
Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Arg Gly Asp
65                  70                  75                  80
Ser Pro Thr Glu Lys His Lys Lys Leu Tyr Pro Ser Cys Arg Phe Val
                85                  90                  95
Gln Ser Leu Asn Ser Val Asn Asn Leu Glu Ala Thr Ser Gln Pro Thr
            100                 105                 110
Phe Pro Ser Ser Val Thr His Ser Thr His Ser Leu Leu Pro Gly Thr
        115                 120                 125
Glu Asn Ser Gly Tyr Phe Arg Gly Ser Tyr Ser Asn Ser Pro Ser Asn
    130                 135                 140
Pro Val Asn Ser Arg Ala Asn Gln Glu Phe Ser Ala Leu Met Arg Ser
145                 150                 155                 160
Ser Tyr Pro Cys Pro Met Asn Asn Glu Asn Ala Arg Leu Leu Thr Phe
                165                 170                 175
Gln Thr Trp Pro Leu Thr Phe Leu Ser Pro Thr Asp Leu Ala Arg Ala
            180                 185                 190
Gly Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys
        195                 200                 205
Gly Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Asn Ala Met Ser Glu
    210                 215                 220
His Leu Arg His Phe Pro Lys Cys Pro Phe Ile Glu Asn Gln Leu Gln
225                 230                 235                 240
Asp Thr Ser Arg Tyr Thr Val Ser Asn Leu Ser Met Gln Thr His Ala
                245                 250                 255
Ala Arg Phe Lys Thr Phe Phe Asn Trp Pro Ser Ser Val Leu Val Asn
            260                 265                 270
Pro Glu Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Gly Asn Ser Asp
        275                 280                 285
Asp Val Lys Cys Phe Cys Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser
    290                 295                 300
Gly Asp Asp Pro Trp Val Gln His Ala Lys Trp Phe Pro Arg Cys Glu
305                 310                 315                 320
Tyr Leu Ile Arg Ile Lys Gly Gln Glu Phe Ile Arg Gln Val Gln Ala
                325                 330                 335
```

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Ser Tyr Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Ser Pro
            340                 345                 350
Gly Asp Glu Asn Ala Glu Ser Ser Ile Ile His Leu Glu Pro Gly Glu
        355                 360                 365
Asp His Ser Glu Asp Ala Ile Met Met Asn Thr Pro Val Ile Asn Ala
    370                 375                 380
Ala Val Glu Met Gly Phe Ser Arg Ser Leu Val Lys Gln Thr Val Gln
385                 390                 395                 400
Arg Lys Ile Leu Ala Thr Gly Glu Asn Tyr Arg Leu Val Asn Asp Leu
                405                 410                 415
Val Leu Asp Leu Leu Asn Ala Glu Asp Glu Ile Arg Glu Glu Glu Arg
            420                 425                 430
Glu Arg Ala Thr Glu Glu Lys Glu Ser Asn Asp Leu Leu Leu Ile Arg
        435                 440                 445
Lys Asn Arg Met Ala Leu Phe Gln His Leu Thr Cys Val Ile Pro Ile
    450                 455                 460
Leu Asp Ser Leu Leu Thr Ala Gly Ile Ile Asn Glu Gln Glu His Asp
465                 470                 475                 480
Val Ile Lys Gln Lys Thr Gln Thr Ser Leu Gln Ala Arg Glu Leu Ile
                485                 490                 495
Asp Thr Ile Leu Val Lys Gly Asn Ile Ala Ala Thr Val Phe Arg Asn
            500                 505                 510
Ser Leu Gln Glu Ala Glu Ala Val Leu Tyr Glu His Leu Phe Val Gln
        515                 520                 525
Gln Asp Ile Lys Tyr Ile Pro Thr Glu Asp Val Ser Asp Leu Pro Val
    530                 535                 540
Glu Glu Gln Leu Arg Arg Leu Pro Glu Glu Arg Thr Cys Lys Val Cys
545                 550                 555                 560
Met Asp Lys Glu Val Ser Ile Val Phe Ile Pro Cys Gly His Leu Val
                565                 570                 575
Val Cys Lys Asp Cys Ala Pro Ser Leu Arg Lys Cys Pro Ile Cys Arg
            580                 585                 590
Ser Thr Ile Lys Gly Thr Val Arg Thr Phe Leu Ser
        595                 600
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<210> 222
<211> 2580
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(2580)
<223> n=a,t,c, or g

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taattcagag agatactcat cctacctgaa tataaactga gataaatcca gtaaagaaag 120
tgtagtaaat tctacataag agtctatcat tgatttcttt ttgtggtgga aatcttagtt 180
catgtgaaga aatttcatgt gaatgtttta gctatcaaac agtactgtca cctactcatg 240
cacaaaactg cctcccaaag acttttccca ggtccctcgt atcaaaacat taagagtata 300
atggaagata gcacgatctt gtcagattgg acaaacagca acaaacaaaa aatgaagtat 360
gacttttcct gtgaactcta cagaatgtct acatattcaa ctttccccgc cggggtgcct 420
gtctcagaaa ggagtcttgc tcgtgctggt ttttattata ctggtgtgaa tgacaaggtc 480
aaatgcttct gttgtggcct gatgctggat aactggaaac taggagacag tcctattcaa 540
aagcataaac agctatatcc tagctgtagc tttattcaga atctggtttc agctagtctg 600
ggatccacct ctaagaatac gtctccaatg agaaacagtt ttgcacattc attatctccc 660
accttggaac atagtagctt gttcagtggt tcttactcca gccttcctcc aaaccctctt 720

aattctagag cagttgaaga catctcttca tcgaggacta acccctacag ttatgcaatg 780
agtactgaag aagccagatt tcttacctac catatgtggc cattaacttt tttgtcacca 840
tcagaattgg caagagctgg tttttattat ataggacctg gagatagggt agcctgcttt 900
gcctgtggtg ggaagctcag taactgggaa ccaaaggatg atgctatgtc agaacaccgg 960
aggcattttc ccaactgtcc atttttggaa aattctctag aaactctgag gtttagcatt 1020
tcaaatctga gcatgcagac acatgcagct cgaatgagaa catttatgta ctggccatct 1080
agtgttccag ttcagcctga gcagcttgca agtgctggtt tttattatgt gggtcgcaat 1140
gatgatgtca aatgctttgg ttgtgatggt ggcttgaggt gttgggaatc tggagatgat 1200
ccatgggtag aacatgccaa gtggtttcca aggtgtgagt tcttgatacg aatgaaaggc 1260
caagagtttg ttgatgagat tcaaggtaga tatcctcatc ttcttgaaca gctgttgtca 1320
acttcagata ccactggaga agaaaatgct gacccaccaa ttattcattt tggacctgga 1380
gaaagttctt cagaagatgc tgtcatgatg aatacacctg tggttaaatc tgccttggaa 1440
atgggcttta atagagacct ggtgaaacaa acagttctaa gtaaaatcct gacaactgga 1500
gagaactata aaacagttaa tgatattgtg tcagcacttc ttaatgctga agatgaaaaa 1560
agagaagagg agaaggaaaa acaagctgaa gaaatggcat cagatgattt gtcattaatt 1620
cggaagaaca gaatggctct ctttcaacaa ttgacatgtg tgcttcctat cctggataat 1680
cttttaaagg ccaatgtaat taataaacag gaacatgata ttattaaaca aaaaacacag 1740
ataccttac aagcgagaga actgattgat accatttggg ttaaaggaaa tgctgcggcc 1800
aacatcttca aaaactgtct aaaagaaatt gactctacat tgtataagaa cttatttgtg 1860
gataagaata tgaagtatat tccaacagaa gatgtttcag gtctgtcact ggaagaacaa 1920
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gtatttattc cttgtggtca tctggtagta tgccaggaat gtgcccttc tctaagaaaa 2040
tgccctattt gcaggggtat aatcaagggt actgttcgta catttctctc ttaaagaaaa 2100
atagtctata ttttaacctg cataaaaagg tctttaaaat attgttgaac acttgaagcc 2160
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tttggtacta ataatcttgt ttctgaaaag atggtatcat atatttaatc ttaatctgtt 2280
tatttacaag ggaagattta tgtttggtga actatattag tatgtatgtg tacctaaggg 2340
agtagcgtcn ctgcttgtta tgcatcattt caggagttac tggatttgtt gttctttcag 2400
aaagctttga anactaaatt atagtgtaga aaagaactgg aaaccaggaa ctctggagtt 2460
catcagagtt atggtgccga attgtctttg gtgcttttca cttgtgtttt aaaataagga 2520
tttttctctt atttctcccc ctagtttgtg agaaacatct caataaagtg ctttaaaaag 2580

<210> 223
<211> 618
<212> PRT
<213> Homo sapiens

<400> 223
Met His Lys Thr Ala Ser Gln Arg Leu Phe Pro Gly Pro Ser Tyr Gln
 1   5   10   15
Asn Ile Lys Ser Ile Met Glu Asp Ser Thr Ile Leu Ser Asp Trp Thr
            20   25   30
Asn Ser Asn Lys Gln Lys Met Lys Tyr Asp Phe Ser Cys Glu Leu Tyr
        35   40   45
Arg Met Ser Thr Tyr Ser Thr Phe Pro Ala Gly Val Pro Val Ser Glu
    50   55   60
Arg Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys
65   70   75   80
Val Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Leu Gly
                85   90   95
Asp Ser Pro Ile Gln Lys His Lys Gln Leu Tyr Pro Ser Cys Ser Phe
            100   105   110
Ile Gln Asn Leu Val Ser Ala Ser Leu Gly Ser Thr Ser Lys Asn Thr
        115   120   125
Ser Pro Met Arg Asn Ser Phe Ala His Ser Leu Ser Pro Thr Leu Glu
    130   135   140
His Ser Ser Leu Phe Ser Gly Ser Tyr Ser Ser Leu Pro Pro Asn Pro
145   150   155   160

```
Leu Asn Ser Arg Ala Val Glu Asp Ile Ser Ser Ser Arg Thr Asn Pro
                165                 170                 175
Tyr Ser Tyr Ala Met Ser Thr Glu Glu Ala Arg Phe Leu Thr Tyr His
            180                 185                 190
Met Trp Pro Leu Thr Phe Leu Ser Pro Ser Glu Leu Ala Arg Ala Gly
        195                 200                 205
Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys Gly
    210                 215                 220
Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Asp Ala Met Ser Glu His
225                 230                 235                 240
Arg Arg His Phe Pro Asn Cys Pro Phe Leu Glu Asn Ser Leu Glu Thr
                245                 250                 255
Leu Arg Phe Ser Ile Ser Asn Leu Ser Met Gln Thr His Ala Ala Arg
            260                 265                 270
Met Arg Thr Phe Met Tyr Trp Pro Ser Ser Val Pro Val Gln Pro Glu
        275                 280                 285
Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Gly Arg Asn Asp Asp Val
    290                 295                 300
Lys Cys Phe Gly Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser Gly Asp
305                 310                 315                 320
Asp Pro Trp Val Glu His Ala Lys Trp Phe Pro Arg Cys Glu Phe Leu
                325                 330                 335
Ile Arg Met Lys Gly Gln Glu Phe Val Asp Glu Ile Gln Gly Arg Tyr
            340                 345                 350
Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Thr Thr Gly Glu
        355                 360                 365
Glu Asn Ala Asp Pro Pro Ile Ile His Phe Gly Pro Gly Glu Ser Ser
    370                 375                 380
Ser Glu Asp Ala Val Met Met Asn Thr Pro Val Val Lys Ser Ala Leu
385                 390                 395                 400
Glu Met Gly Phe Asn Arg Asp Leu Val Lys Gln Thr Val Leu Ser Lys
                405                 410                 415
Ile Leu Thr Thr Gly Glu Asn Tyr Lys Thr Val Asn Asp Ile Val Ser
            420                 425                 430
Ala Leu Leu Asn Ala Glu Asp Glu Lys Arg Glu Glu Glu Lys Glu Lys
        435                 440                 445
Gln Ala Glu Glu Met Ala Ser Asp Asp Leu Ser Leu Ile Arg Lys Asn
    450                 455                 460
Arg Met Ala Leu Phe Gln Gln Leu Thr Cys Val Leu Pro Ile Leu Asp
465                 470                 475                 480
Asn Leu Leu Lys Ala Asn Val Ile Asn Lys Gln Glu His Asp Ile Ile
                485                 490                 495
Lys Gln Lys Thr Gln Ile Pro Leu Gln Ala Arg Glu Leu Ile Asp Thr
            500                 505                 510
Ile Trp Val Lys Gly Asn Ala Ala Ala Asn Ile Phe Lys Asn Cys Leu
        515                 520                 525
Lys Glu Ile Asp Ser Thr Leu Tyr Lys Asn Leu Phe Val Asp Lys Asn
    530                 535                 540
Met Lys Tyr Ile Pro Thr Glu Asp Val Ser Gly Leu Ser Leu Glu Glu
545                 550                 555                 560
Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys Lys Val Cys Met Asp
                565                 570                 575
Lys Glu Val Ser Val Val Phe Ile Pro Cys Gly His Leu Val Val Cys
            580                 585                 590
Gln Glu Cys Ala Pro Ser Leu Arg Lys Cys Pro Ile Cys Arg Gly Ile
        595                 600                 605
Ile Lys Gly Thr Val Arg Thr Phe Leu Ser
    610                 615
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<210> 224
<211> 2100
<212> DNA
<213> Mus musculus

<400> 224
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gcggcgctta gttaggactg gagtgcttgg cgcgaaaagg tggacaagtc ctattttcca 120
gagaagatga cttttaacag ttttgaagga actagaactt ttgtacttgc agacaccaat 180
aaggatgaag aatttgtaga agagtttaat agattaaaaa catttgctaa cttcccaagt 240
agtagtcctg tttcagcatc aacattggcg cgagctgggt ttctttatac cggtgaagga 300
gacaccgtgc aatgtttcag ttgtcatgcg gcaatagata gatggcagta tggagactca 360
gctgttggaa gacacaggag aatatcccca aattgcagat ttatcaatgg tttttatttt 420
gaaaatggtg ctgcacagtc tacaaatcct ggtatccaaa atggccagta caaatctgaa 480
aactgtgtgg gaaatagaaa tccttttgcc cctgacaggc cacctgagac tcatgctgat 540
tatctcttga gaactggaca ggttgtagat atttcagaca ccatataccc gaggaaccct 600
gccatgtgta gtgaagaagc cagattgaag tcatttcaga actggccgga ctatgctcat 660
ttaaccccca gagagttagc tagtgctggc ctctactaca caggggctga tgatcaagtg 720
caatgctttt gttgtggggg aaaactgaaa aattgggaac cctgtgatcg tgcctggtca 780
gaacacagga gacactttcc caattgcttt tttgttttgg gccggaacgt taatgttcga 840
agtgaatctg gtgtgagttc tgataggaat ttcccaaatt caacaaactc tccaagaaat 900
ccagccatgg cagaatatga agcacggatc gttacttttg gaacatggat atactcagtt 960
aacaaggagc agcttgcaag agctggattt tatgctttag gtgaaggcga taaagtgaag 1020
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catgctaagt gctacccagg gtgcaaatac ctattggatg agaaggggca agaatatata 1140
aataatattc atttaaccca tccacttgag gaatctttgg gaagaactgc tgaaaaaaca 1200
ccaccgctaa ctaaaaaaat cgatgatacc atcttccaga atcctatggt gcaagaagct 1260
atacgaatgg gatttagctt caaggacctt aagaaaacaa tggaagaaaa aatccaaaca 1320
tccgggagca gctatctatc acttgaggtc ctgattgcag atcttgtgag tgctcagaaa 1380
gataatacgg aggatgagtc aagtcaaact tcattgcaga aagacattag tactgaagag 1440
cagctaaggc gcctacaaga ggagaagctt tccaaaatct gtatggatag aaatattgct 1500
atcgtttttt ttccttgtgg acatctggcc acttgtaaac agtgtgcaga agcagttgac 1560
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ggcaccacat gttatgttct tcttgctcta attgaatgtg taatgggagc gaactttaag 1680
taatcctgca tttgcattcc attagcatcc tgctgtttcc aaatggagac caatgctaac 1740
agcactgttt ccgtctaaac attcaatttc tggatctttc gagttatcag ctgtatcatt 1800
tagccagtgt tttactcgat tgaaacctta gacagagaag cattttatag cttttcacat 1860
gtatattggt agtacactga cttgatttct atatgtaagt gaattcatca cctgcatgtt 1920
tcatgccttt tgcataagct taacaaatgg agtgttctgt ataagcatgg agatgtgatg 1980
gaatctgccc aatgacttta attggcttat tgtaaacacg gaaagaactg ccccacgctg 2040
ctgggaggat aaagattgtt ttagatgctc acttctgtgt tttaggattc tgcccattta 2100

<210> 225
<211> 496
<212> PRT
<213> Mus musculus

<400> 225
Met Thr Phe Asn Ser Phe Glu Gly Thr Arg Thr Phe Val Leu Ala Asp
 1   5   10   15
Thr Asn Lys Asp Glu Glu Phe Val Glu Glu Phe Asn Arg Leu Lys Thr
            20   25   30
Phe Ala Asn Phe Pro Ser Ser Ser Pro Val Ser Ala Ser Thr Leu Ala
        35   40   45
Arg Ala Gly Phe Leu Tyr Thr Gly Glu Gly Asp Thr Val Gln Cys Phe
    50   55   60
Ser Cys His Ala Ala Ile Asp Arg Trp Gln Tyr Gly Asp Ser Ala Val
65   70   75   80

```
Gly Arg His Arg Arg Ile Ser Pro Asn Cys Arg Phe Ile Asn Gly Phe
                85                  90                  95
Tyr Phe Glu Asn Gly Ala Ala Gln Ser Thr Asn Pro Gly Ile Gln Asn
            100                 105                 110
Gly Gln Tyr Lys Ser Glu Asn Cys Val Gly Asn Arg Asn Pro Phe Ala
        115                 120                 125
Pro Asp Arg Pro Pro Glu Thr His Ala Asp Tyr Leu Leu Arg Thr Gly
    130                 135                 140
Gln Val Val Asp Ile Ser Asp Thr Ile Tyr Pro Arg Asn Pro Ala Met
145                 150                 155                 160
Cys Ser Glu Glu Ala Arg Leu Lys Ser Phe Gln Asn Trp Pro Asp Tyr
                165                 170                 175
Ala His Leu Thr Pro Arg Glu Leu Ala Ser Ala Gly Leu Tyr Tyr Thr
            180                 185                 190
Gly Ala Asp Asp Gln Val Gln Cys Phe Cys Cys Gly Gly Lys Leu Lys
        195                 200                 205
Asn Trp Glu Pro Cys Asp Arg Ala Trp Ser Glu His Arg Arg His Phe
    210                 215                 220
Pro Asn Cys Phe Phe Val Leu Gly Arg Asn Val Asn Val Arg Ser Glu
225                 230                 235                 240
Ser Gly Val Ser Ser Asp Arg Asn Phe Pro Asn Ser Thr Asn Ser Pro
                245                 250                 255
Arg Asn Pro Ala Met Ala Glu Tyr Glu Ala Arg Ile Val Thr Phe Gly
            260                 265                 270
Thr Trp Ile Tyr Ser Val Asn Lys Glu Gln Leu Ala Arg Ala Gly Phe
        275                 280                 285
Tyr Ala Leu Gly Glu Gly Asp Lys Val Lys Cys Phe His Cys Gly Gly
    290                 295                 300
Gly Leu Thr Asp Trp Lys Pro Ser Glu Asp Pro Trp Asp Gln His Ala
305                 310                 315                 320
Lys Cys Tyr Pro Gly Cys Lys Tyr Leu Leu Asp Glu Lys Gly Gln Glu
                325                 330                 335
Tyr Ile Asn Asn Ile His Leu Thr His Pro Leu Glu Glu Ser Leu Gly
            340                 345                 350
Arg Thr Ala Glu Lys Thr Pro Pro Leu Thr Lys Lys Ile Asp Asp Thr
        355                 360                 365
Ile Phe Gln Asn Pro Met Val Gln Glu Ala Ile Arg Met Gly Phe Ser
    370                 375                 380
Phe Lys Asp Leu Lys Lys Thr Met Glu Glu Lys Ile Gln Thr Ser Gly
385                 390                 395                 400
Ser Ser Tyr Leu Ser Leu Glu Val Leu Ile Ala Asp Leu Val Ser Ala
                405                 410                 415
Gln Lys Asp Asn Thr Glu Asp Glu Ser Ser Gln Thr Ser Leu Gln Lys
            420                 425                 430
Asp Ile Ser Thr Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Lys Leu
        435                 440                 445
Ser Lys Ile Cys Met Asp Arg Asn Ile Ala Ile Val Phe Phe Pro Cys
    450                 455                 460
Gly His Leu Ala Thr Cys Lys Gln Cys Ala Glu Ala Val Asp Lys Cys
465                 470                 475                 480
Pro Met Cys Tyr Thr Val Ile Thr Phe Asn Gln Lys Ile Phe Met Ser
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<210> 226
<211> 2474
<212> DNA
<213> Mus musculus

<400> 226
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gacagcgcct ttctagccaa gctgatgaag agtgctgaca cctttgagtt gaagtatgac 240
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<211> 602
<212> PRT
<213> Mus musculus

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Leu Ser Thr Tyr Ser Ala Phe Pro Arg Gly Val Pro Val Ser Glu Arg
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Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Ala Asn Asp Lys Val
    50   55   60
Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Gln Gly Asp

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Ser Pro Met Glu Lys His Arg Lys Leu Tyr Pro Ser Cys Asn Phe Val
                85                  90                  95
Gln Thr Leu Asn Pro Ala Asn Ser Leu Glu Ala Ser Pro Arg Pro Ser
            100                 105                 110
Leu Pro Ser Thr Ala Met Ser Thr Met Pro Leu Ser Phe Ala Ser Ser
        115                 120                 125
Glu Asn Thr Gly Tyr Phe Ser Gly Ser Tyr Ser Ser Phe Pro Ser Asp
    130                 135                 140
Pro Val Asn Phe Arg Ala Asn Gln Asp Cys Pro Ala Leu Ser Thr Ser
145                 150                 155                 160
Pro Tyr His Phe Ala Met Asn Thr Glu Lys Ala Arg Leu Leu Thr Tyr
                165                 170                 175
Glu Thr Trp Pro Leu Ser Phe Leu Ser Pro Ala Lys Leu Ala Lys Ala
            180                 185                 190
Gly Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys
        195                 200                 205
Asp Gly Lys Leu Ser Asn Trp Glu Arg Lys Asp Asp Ala Met Ser Glu
    210                 215                 220
His Gln Arg His Phe Pro Ser Cys Pro Phe Leu Lys Asp Leu Gly Gln
225                 230                 235                 240
Ser Ala Ser Arg Tyr Thr Val Ser Asn Leu Ser Met Gln Thr His Ala
                245                 250                 255
Ala Arg Ile Arg Thr Phe Ser Asn Trp Pro Ser Ser Ala Leu Val His
            260                 265                 270
Ser Gln Glu Leu Ala Ser Ala Gly Phe Tyr Tyr Thr Gly His Ser Asp
        275                 280                 285
Asp Val Lys Cys Leu Cys Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser
    290                 295                 300
Gly Asp Asp Pro Trp Val Glu His Ala Lys Trp Phe Pro Arg Cys Glu
305                 310                 315                 320
Tyr Leu Leu Arg Ile Lys Gly Gln Glu Phe Val Ser Gln Val Gln Ala
                325                 330                 335
Gly Tyr Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Ser Pro
            340                 345                 350
Glu Asp Glu Asn Ala Asp Ala Ala Ile Val His Phe Gly Pro Gly Glu
        355                 360                 365
Ser Ser Glu Asp Val Val Met Met Ser Thr Pro Val Val Lys Ala Ala
    370                 375                 380
Leu Glu Met Gly Phe Ser Arg Ser Leu Val Arg Gln Thr Val Gln Trp
385                 390                 395                 400
Gln Ile Leu Ala Thr Gly Glu Asn Tyr Arg Thr Val Ser Asp Leu Val
                405                 410                 415
Ile Gly Leu Leu Asp Ala Glu Asp Glu Met Arg Glu Glu Gln Met Glu
            420                 425                 430
Gln Ala Ala Glu Glu Glu Glu Ser Asp Asp Leu Ala Leu Ile Arg Lys
        435                 440                 445
Asn Lys Met Val Leu Phe Gln His Leu Thr Cys Val Thr Pro Met Leu
    450                 455                 460
Tyr Cys Leu Leu Ser Ala Arg Ala Ile Thr Glu Gln Glu Cys Asn Ala
465                 470                 475                 480
Val Lys Gln Lys Pro His Thr Leu Gln Ala Ser Thr Leu Ile Asp Thr
                485                 490                 495
Val Leu Ala Lys Gly Asn Thr Ala Ala Thr Ser Phe Arg Asn Ser Leu
            500                 505                 510
Arg Glu Ile Asp Pro Ala Leu Tyr Arg Asp Ile Phe Val Gln Gln Asp
        515                 520                 525
Ile Arg Ser Leu Pro Thr Asp Asp Ile Ala Ala Leu Pro Met Glu Glu
    530                 535                 540
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Gln Leu Arg Pro Leu Pro Glu Asp Arg Met Cys Lys Val Cys Met Asp
545                 550                 555                 560
Arg Glu Val Ser Ile Val Phe Ile Pro Cys Gly His Leu Val Val Cys
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            580                 585                 590
Ile Lys Gly Thr Val Arg Thr Phe Leu Ser
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<210> 228
<211> 2416
<212> DNA
<213> Mus musculus

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gagcgaagaa aaaatgaagt ttgacttttc gtgtgaactc taccgaatgt ctacatattc 240
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<210> 229

<211> 591
<212> PRT
<213> Mus musculus

<400> 229
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Ser Ala Phe Pro Arg Gly Val Pro Val Ser Glu Arg Ser Leu Ala Arg
35 40 45
Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys Val Lys Cys Phe Cys
50 55 60
Cys Gly Leu Met Leu Asp Asn Trp Lys Gln Gly Asp Ser Pro Val Glu
65 70 75 80
Lys His Arg Gln Phe Tyr Pro Ser Cys Ser Phe Val Gln Thr Leu Leu
85 90 95
Ser Ala Ser Leu Gln Ser Pro Ser Lys Asn Met Ser Pro Val Lys Ser
100 105 110
Arg Phe Ala His Ser Ser Pro Leu Glu Arg Gly Gly Ile His Ser Asn
115 120 125
Leu Cys Ser Ser Pro Leu Asn Ser Arg Ala Val Glu Asp Phe Ser Ser
130 135 140
Arg Met Asp Pro Cys Ser Tyr Ala Met Ser Thr Glu Glu Ala Arg Phe
145 150 155 160
Leu Thr Tyr Ser Met Trp Pro Leu Ser Phe Leu Ser Pro Ala Glu Leu
165 170 175
Ala Arg Ala Gly Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys
180 185 190
Phe Ala Cys Gly Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Tyr Ala
195 200 205
Met Ser Glu His Arg Arg His Phe Pro His Cys Pro Phe Leu Glu Asn
210 215 220
Thr Ser Glu Thr Gln Arg Phe Ser Ile Ser Asn Leu Ser Met Gln Thr
225 230 235 240
His Ser Ala Arg Leu Arg Thr Phe Leu Tyr Trp Pro Pro Ser Val Pro
245 250 255
Val Gln Pro Glu Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Asp Arg
260 265 270
Asn Asp Asp Val Lys Cys Leu Cys Cys Asp Gly Gly Leu Arg Cys Trp
275 280 285
Glu Pro Gly Asp Asp Pro Trp Ile Glu His Ala Lys Trp Phe Pro Arg
290 295 300
Cys Glu Phe Leu Ile Arg Met Lys Gly Gln Glu Phe Val Asp Glu Ile
305 310 315 320
Gln Ala Arg Tyr Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp
325 330 335
Thr Pro Gly Glu Glu Asn Ala Asp Pro Thr Glu Thr Val Val His Phe
340 345 350
Gly Pro Gly Glu Ser Ser Lys Asp Val Val Met Met Ser Thr Pro Val
355 360 365
Val Lys Ala Ala Leu Glu Met Gly Phe Ser Arg Ser Leu Val Arg Gln
370 375 380
Thr Val Gln Arg Gln Ile Leu Ala Thr Gly Glu Asn Tyr Arg Thr Val
385 390 395 400
Asn Asp Ile Val Ser Val Leu Leu Asn Ala Glu Asp Glu Arg Arg Glu
405 410 415
Glu Glu Lys Glu Arg Gln Thr Glu Glu Met Ala Ser Gly Asp Leu Ser
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Leu Pro Ile Leu Asp Asn Leu Leu Glu Ala Ser Val Ile Thr Lys Gln
    450                 455                 460
Glu His Asp Ile Ile Arg Gln Lys Thr Gln Ile Pro Leu Gln Ala Arg
465                 470                 475                 480
Glu Leu Ile Asp Thr Val Leu Val Lys Gly Asn Ala Ala Ala Asn Ile
                485                 490                 495
Phe Lys Asn Ser Leu Lys Gly Ile Asp Ser Thr Leu Tyr Glu Asn Leu
            500                 505                 510
Phe Val Glu Lys Asn Met Lys Tyr Ile Pro Thr Glu Asp Val Ser Gly
        515                 520                 525
Leu Ser Leu Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys
    530                 535                 540
Lys Val Cys Met Asp Arg Glu Val Ser Ile Val Phe Ile Pro Cys Gly
545                 550                 555                 560
His Leu Val Val Cys Gln Glu Cys Ala Pro Ser Leu Arg Lys Cys Pro
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Ile Cys Arg Gly Thr Ile Lys Gly Thr Val Arg Thr Phe Leu Ser
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<210> 230
<211> 6669
<212> DNA
<213> Homo sapiens

<220>
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<223> n=a,t,c, or g

<400> 230
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